AVIAN DISEASES 48:949–955, 2004

CONTENTS—JANUARY–MARCH 2004

Historical Article—

History of Biological Control of Poultry Diseases in the U.S.A. STEPHEN B. HITCHNER .. 1

Regular Articles—

The Role of Litter Beetles as Potential Reservoir for Salmonella enterica and Thermophilic Campylobacter spp. Between Broiler Flocks. M. N. SKOV, A. G. SPENCER, B. HALD, L. PETERSEN, B. NAUERBY, B. CARSTENSEN, AND M. MADSEN 9

Attenuation of an Avian Pathogenic Escherichia coli Strain Due to a Mutation in the rpsL Gene. K. K. AMOAKO, T. PRYSLIAK, A. A. POTTER, S. K. COLLINSON, W. W. KAY, AND B. J. ALLAN 19

Investigation of H7N2 Avian Influenza Outbreaks in Two Broiler Breeder Flocks in Pennsylvania, 2001–02. HUAGUANG LU, PATRICIA A. DUNN, EVA A. WALLNER-PENDLETON, DAVID J. HENZLER, DAVID C. KRADEL, JIABO LIU, DANIEL P. SHAW, AND PAUL MILLER 26

Effects of Bacterial Coinfection on the Pathogenesis of Avian Pneumovirus Infection in Turkeys. FARIS F. JIRJIS, SALLY L. NOLL, DAVID A. HALVORSON, KAKAMBI V. NAGARAJA, FRANK MARTIN, AND DANIEL P. SHAW 34

Pathogenesis of a Marek's Disease Virus Mutant Lacking vIL-8 in Resistant and Susceptible Chickens. PORTIA L. CORTES AND CAROL J. CARDONA 50

Response of White Leghorn Chickens of Various Genetic Lines to Infection with Avian Leukosis Virus Subgroup J. SUSAN M. WILLIAMS, WILLIE M. REED, LARRY D. BACON, AND ALY M. FADLY 61

Effect of Ibuprofen on Coccidiosis in Broiler Chickens. B. VERMEULEN, H. W. PEEK, J. P. REMON, AND W. J. M. LANDMAN 68

Changes in VP2 Gene During the Attenuation of Very Virulent Infectious Bursal Disease Virus Strain Gx Isolated in China. X. M. WANG, X. W. ZENG, H. L. GAO, C. Y. FU, AND P. WEI 77

Health Survey of House Finches (Carpodacus mexicanus) from Wisconsin. BARRY K. HARTUP, BRIANA STOTT-MESSICK, MICHAEL GUZY, AND DAVID H. LEY 84

Safety and Efficacy of the Avirulent Mycoplasma gallisepticum Strain K5054 as a Live Vaccine in Poultry. N. M. FERGUSON, V. A. LEITING, AND S. H. KLEVEN 91

Genetic Relatedness of High-Level Aminoglycoside-Resistant Enterococci Isolated from Poultry Carcasses. CHARLENE R. JACKSON, PAULA J. FEDORKA-CRAY, JOHN B. BARRETT, AND SCOTT R. LADELY 100

Chicken Infectious Anemia Virus Infection in Israeli Commercial Flocks: Virus Amplification, Clinical Signs, Performance, and Antibody Status. I. DAVIDSON, M. KEDEM, H. BOROCHOVITZ, N. KASS, G. AYALI, E. HAMZANI, B. PERELMAN, B. SMITH, AND S. PERK 108

Comparative Pathobiology of Low and High Pathogenicity H7N3 Chilean Avian Influenza Viruses in Chickens. YAVA L. JONES AND DAVID E. SWAYNE 119

The Efficacy of Recombinant Fowlpox Vaccine Protection Against Marek's Disease: Its Dependence on Chicken Line and B Haplotype. LUCY F. LEE, L. D. BACON, S. YOSHIDA, N. YANAGIDA, H. M. ZHANG, AND R. L. WITTER 129

Relationship of Campylobacter Isolated from Poultry and from Darkling Beetles in New Zealand. C. BATES, K. L. HIETT, AND N. J. STERN 138

Detection of Airborne Salmonella enteritidis in the Environment of Experimentally Infected Laying Hens by an Electrostatic Sampling Device. RICHARD K. GAST, BAILEY W. MITCHELL, AND PETER S. HOLT 148

Cold-Adapted Strain of Avian Pneumovirus as a Vaccine in One-Day-Old Turkeys and the Effect of Inoculation Routes. DEVI P. PATNAYAK AND SAGAR M. GOYAL 155

Effects of Prior Coinfection with Different Salmonella Serovars on the Progression of a Salmonella enterica serovar enteritidis Infection in Hens Undergoing Induced Molt. PETER S. HOLT AND RICHARD K. GAST 160

Comparative Susceptibility of Chickens and Turkeys to Avian Influenza A H7N2 Virus Infection and Protective Efficacy of a Commercial Avian Influenza H7N2 Virus Vaccine. TERRENCE M. TUMPEY, DARRELL R. KAPCZYNSKI, AND DAVID E. SWAYNE 167

Research Notes—

Effect of Different Levels of Maternally Derived Antibodies on Protection Against Infectious Bursal Disease Virus. M. Q. AL-NATOUR, L. A. WARD, Y. M. SAIF, B. STEWART-BROWN, AND L. D. KECK 177

The Effect of Killed Salmonella enteritidis Vaccine Prior to Induced Molting on the Shedding of S. enteritidis in Laying Hens. MASAYUKI NAKAMURA, TOMOSHI NAGATA, SHIZUKA OKAMURA, KAZUAKI TAKEHARA, AND PETER S. HOLT 183

Prevalence of Pathogenic Escherichia coli in the Broiler House Environment. J. S. JEFFREY, R. S. SINGER, R. O'CONNOR, AND E. R. ATWILL 189

Effects of an S6 Strain of Mycoplasma gallisepticum Inoculation Before Beginning of Lay on the Leukocytic Characteristics of Commercial Layers. E. D. PEEBLES, T. A. PARKER, S. L. BRANTON, K. O. WILLEFORD, M. S. JONES, P. D. GERARD, G. T. PHARR, AND W. R. MASLIN 196

Serologic Evidence of Chicken Infectious Anemia in Commercial Chicken Flocks in Southwest Nigeria. A. A. OWOADE, D. O. OLUWAYELU, O. A. FAGBOHUN, W. AMMERLAAN, M. N. MULDERS, AND C. P. MULLER 202

Antigenic and Genomic Characterization of Turkey Enterovirus-Like Virus (North Carolina, 1988 Isolate): Identification of the Virus as Turkey Astrovirus 2. JAMES S. GUY, ANDREA M. MILES, LYNDA SMITH, FREDERICK J. FULLER, AND STACY SCHULTZ-CHERRY 206

Genetic Characterization of a Herpesvirus Isolate from a Superb Starling (Lamprotornis superbus) as a Psittacid Herpesvirus Genotype 1. ELIZABETH K. TOMASZEWSKI, MARCUS GRAVENDYCK, ERHARD F. KALETA, AND DAVID N. PHALEN 212

Mycoplasma gallisepticum–Induced Alterations in Cytokine Genes in Chicken Cells and Embryos. K. M. Lam 215

No Evidence for Adaptation of Current Egg Drop Syndrome 1976 Viruses to Chickens. K. Tsukamoto, M. Kuwabara, M. Kaneko, M. Mase, and K. Imai 220

Effect of In Ovo Administered Reovirus Vaccines on Immune Responses of Specific-Pathogen-Free Chickens. Z. Y. Guo, J. J. Giambrone, Z. Liu, T. V. Dormitorio, and Hongzhuan Wu 224

Guidelines for Authors 229

CONTENTS—APRIL–JUNE 2004

Obituaries—

Dr. Benjamin Pomeroy 231

Dr. Robert Kenny Page 232

Regular Articles—

Studies of the Transmission Routes of Ornithobacterium rhinotracheale and Immunoprophylaxis to Prevent Infection in Young Meat Turkeys. L. van Veen, M. Vrijenhoek, and P. van Empel 233

Effect of BioSentry 904 and Ethylenediaminetetraacetic Acid-Tris Disinfecting During Incubation of Chicken Eggs on Microbial Levels and Productivity of Poultry. S. E. Walker and J. E. Sander 238

Nitric Oxide Production by Macrophages Stimulated with Coccidia Sporozoites, Lipopolysaccharide, or Interferon-γ, and Its Dynamic Changes in SC and TK Strains of Chickens Infected with Eimeria tenella. Hyun S. Lillehoj and Guangxing Li ... 244

Relationship of Messenger RNA Reverse Transcriptase-Polymerase Chain Reaction Signal to Campylobacter spp. Viability. K. D. Sung, N. J. Stern, and K. L. Hiett 254

Evaluation of the Infectivity, Length of Infection, and Immune Response of a Low-Pathogenicity H7N2 Avian Influenza Virus in Specific-Pathogen-Free Chickens. Huaguang Lu and Anthony E. Castro 263

The Influence of Reovirus Sigma C Protein Diversity on Vaccination Efficiency. Y. Vasserman, D. Eliahoo, E. Hemsani, N. Kass, G. Ayali, S. Pokamunski, and J. Pitcovski 271

Salmonella enterica Serovar typhimurium Colonization of the Crop in the Domestic Turkey: Influence of Probiotic and Prebiotic Treatment (Lactobacillus acidophilus and Lactose). Sara A. Johannsen, Ronald W. Griffith, Irene V. Wesley, and Colin G. Scanes 279

Construction, Characterization, and Evaluation of the Vaccine Potential of Three Genetically Defined Mutants of Avian Pathogenic Escherichia coli. S. Kariyawasam, B. N. Wilkie, and C. L. Gyles 287

Proventriculitis in Broiler Chickens: Effects of Immunosuppression. M. J. Pantin-Jackwood, T. P. Brown, Y. Kim, and G. R. Huff 300

Inhibition of Resistance Plasmid Transfer in Escherichia coli by Ionophores, Chlortetracycline, Bacitracin, and Ionophore/Antimicrobial Combinations. JEREMY J. MATHERS, STEVEN R. CLARK, DENNY HAUSMANN, PAUL TILLMAN, VALERIE R. BENNING, AND SHELLY K. GORDON 317

The Effects of Water Supplementation with Vitamin E and Sodium Salicylate (Uni-Sol[R]) on the Resistance of Turkeys to Escherichia coli Respiratory Infection. G. R. HUFF, W. E. HUFF, J. M. BALOG, N. C. RATH, AND R. S. IZARD 324

Development of a Virosome Vaccine Against Avian Metapneumovirus Subtype C for Protection in Turkeys. DARRELL R. KAPCZYNSKI 332

Phenotypic and Genotypic Characterization of Salmonella arizonae from an Integrated Turkey Operation. R. CRESPO, J. S. JEFFREY, R. P. CHIN, G. SENTÍES-CUÉ, AND H. L. SHIVAPRASAD 344

Multiple Antimicrobial Resistance Region of a Putative Virulence Plasmid from an Escherichia coli Isolate Incriminated in Avian Colibacillosis. TIMOTHY J. JOHNSON, JEROD SKYBERG, AND LISA K. NOLAN 351

Effect of a Variant Infectious Bursal Disease Virus (E/Del) on Salmonella typhimurium Infection in Commercial Broiler Chickens. D. A. BAUTISTA, S. ELANKUMARAN, AND R. A. HECKERT 361

Research Notes—

Development of a Protective Index to Rank Effectiveness of Multiple Treatments Within an Experiment: Application to a Cross-Protection Study of Several Strains of Eimeria maxima and a Live Virus. P. C. ALLEN, H. D. DANFORTH, AND B. L. VINYARD 370

Molecular Characterization of Low Pathogenicity H7N3 Avian Influenza Viruses Isolated in Italy. L. DI TRANI, B. BEDINI, P. CORDIOLI, M. MUSCILLO, E. VIGNOLO, A. MORENO, AND M. TOLLIS 376

Interactions of Butyric Acid– and Acetic Acid–Treated Salmonella with Chicken Primary Cecal Epithelial Cells In Vitro. FILIP VAN IMMERSEEL, JEROEN DE BUCK, ISABEL DE SMET, FRANK PASMANS, FREDDY HAESEBROUCK, AND RICHARD DUCATELLE 384

Determination of the Acute 50% Lethal Dose T-2 Toxin in Adult Bobwhite Quail: Additional Studies on the Effect of T-2 Mycotoxin on Blood Chemistry and the Morphology of Internal Organs. JUDITH M. GRIZZLE, DAVID B. KERSTEN, MALCOLM D. MCCRACKEN, ALLAN E. HOUSTON, AND ARNOLD M. SAXTON 392

Detection of Avian Polyomavirus Infection by Polymerase Chain Reaction Using Formalin-Fixed, Parafin-Embedded Tissues. PARIMAL ROY, A. S. DHILLON, LLOYD LAUERMAN, AND H. L. SHIVAPRASAD 400

The Normal Electrocardiogram of the Unanesthetized Peregrine Falcon (Falco peregrinus brookei). R. RODRÍGUEZ, F. PRIETO-MONTAÑA, A. M. MONTES, L. J. BERNAL, C. GUTIERREZ-PANIZO, AND I. AYALA 405

Case Reports—

Pathogenicity and Molecular Analysis of an Infectious Bursal Disease Virus Isolated from Malaysian Village Chickens. D. Y. TAN, M. HAIR-BEJO, A. R. OMAR, AND I. AINI 410

Mortality Factors, Environmental Contaminants, and Parasites of White-Tailed Sea Eagles from Greenland. OLIVER KRONE, FRANK WILLE, NORBERT KENNTNER, DAVID BOERTMANN, AND FRIEDA TATARUCH 417

The Presence of Nicotinamide Adenine Dinucleotide-Independent Haemophilus paragallinarum in México. A. J. GARCÍA, E. ANGULO, P. J. BLACKALL, AND A. M. ORTIZ .. 425

Mild Infectious Laryngotracheitis in Broilers in the Southeast. HOLLY S. SELLERS, MARICARMEN GARCÍA, JOHN R. GLISSON, THOMAS P. BROWN, JEAN S. SANDER, AND JAMES S. GUY 430

Mycobacteriosis in an American Bald Eagle (Haliaeetus leucocephalus). MARK HOENERHOFF, MATTI KIUPEL, JAMES SIKARSKIE, CAROLE BOLIN, HEATHER SIMMONS, AND SCOTT FITZGERALD 437

Guidelines for Authors 442

CONTENTS—SEPTEMBER 2004

Regular Articles—

Comparison of Different Attenuation Strategies in Development of a *Salmonella hadar* Vaccine. KENNETH ROLAND, STEVEN TINGE, ELIZABETH WARNER, AND DONATA SIZEMORE 445

Differentiation of Avian Poxvirus Strains on the Basis of Nucleotide Sequences of 4b Gene Fragment. D. LÜSCHOW, T. HOFFMANN, AND H. M. HAFEZ 453

Pasteurella multocida Infection in Heterophil-Depleted Chickens. ANDERS M. BOJESEN, KAMILLE D. PETERSEN, OLE L. NIELSEN, JENS P. CHRISTENSEN, AND MAGNE BISGAARD.. 463

Construction and Characterization of Marek's Disease Viruses Having Green Fluorescent Protein Expression Tied Directly or Indirectly to Phosphoprotein 38 Expression. JON T. PRIGGE, VLADIMIR MAJERCIAK, HENRY D. HUNT, ROBERT L. DIENGLEWICZ, AND MARK S. PARCELLS 471

Morphologic Changes in Chicken Cells After *In Vitro* Exposure to *Mycoplasma gallisepticum*. K. M. LAM 488

Pathogenesis of Chicken Anemia Virus: Comparison of the Oral and the Intramuscular Routes of Infection. V. L. VAN SANTEN, K. S. JOINER, C. MURRAY, N. PETRENKO, F. J. HOERR, AND H. TORO 494

Mycoplasma meleagridis-Induced Lesions in the Tarsometatarsal Joints of Turkey Embryos. K. M. LAM, A. J. DAMASSA, AND G. YAN GHAZIKHANIAN 505

Genetic Variation of Viral Protein 1 Genes of Field Strains of Waterfowl Parvoviruses and Their Attenuated Derivatives. HSIANG-JUNG TSAI, CHUN-HSIEN TSENG, POA-CHUN CHANG, KAI MEI, AND SHIH-CHI WANG 512

A Prospective Study of Management and Litter Variables Associated with Cellulitis in California Broiler Flocks. J. S. SCHRADER, R. S. SINGER, AND E. R. ATWILL 522

Development of a Multiplex Reverse Transcription–Polymerase Chain Reaction Diagnostic Test Specific for Turkey Astrovirus and Coronavirus. HOLLY S. SELLERS, MATTHEW D. KOCI, ERICH LINNEMANN, LAURA A. KELLEY, AND STACEY SCHULTZ-CHERRY 531

Genetic Characterization of Very Virulent Infectious Bursal Disease Viruses from Latin America. ALEJANDRO BANDA AND PEDRO VILLEGAS 540

Descriptive Study of California Egg Layer Premises and Analysis of Risk Factors for *Salmonella enterica* serotype *enteritidis* as Characterized by Manure Drag Swabs. DAVID M. CASTELLAN, HAILU KINDE, PHILIP H. KASS, GREGG CUTLER, RICHARD E. BREITMEYER, DONALD D. BELL, RALPH A. ERNST, DAVID C. KERR, HERBERT E. LITTLE, DAVID WILLOUGHBY, HANS P. RIEMANN, ALEX ARDANS, JILL A. SNOWDON, AND DOUGLAS R. KUNEY 550

Molecular Characterization of *Mycoplasma gallisepticum* Isolates from Turkeys. S.H. KLEVEN, R. M. FULTON, M. GARCÍA, V. N. IKUTA, V. A. LEITING, T. LIU, D. H. LEY, K. N. OPENGART, G. N. ROWLAND, AND E. WALLNER-PENDLETON 562

Pathologic Findings in Red-Tailed Hawks (*Buteo jamaicensis*) and Cooper's Hawks (*Accipiter cooperi*) Naturally Infected with West Nile Virus. ARNO WÜNSCHMANN, JAN SHIVERS, JEFF BENDER, LARRY CARROLL, SUSAN FULLER, MIGUEL SAGGESE, ARNAUD VAN WETTERE, AND PAT REDIG 570

S1 and N Gene Analysis of Avian Infectious Bronchitis Viruses in Taiwan. YUAN-PIN HUANG, HSIN-CHUN LEE, MING-CHU CHENG, AND CHING-HO WANG 581

The Occurrence and Distribution of *Salmonella enteritidis* and Other Serovars on California Egg Laying Premises: A Comparison of Two Sampling Methods and Two Culturing Techniques. HAILU KINDE, DAVID M. CASTELLAN, PHILIP H. KASS, ALEX ARDANS, GREG CUTLER, RICHARD E. BREITMEYER, DONALD D. BELL, RALPH A. ERNST, DAVID C. KERR, HERBERT E. LITTLE, DAVID WILLOUGHBY, HANS P. RIEMANN, JILL A. SNOWDON, AND DOUGLAS R. KUNEY 590

Expression of *Escherichia coli* Antigens in *Salmonella typhimurium* as a Vaccine to Prevent Airsacculitis in Chickens. KENNETH ROLAND, KEMAL KARACA, AND DONATA SIZEMORE 595

Specific Detection and Typing of *Mycoplasma synoviae* Strains in Poultry with PCR and DNA Sequence Analysis Targeting the Hemagglutinin Encoding Gene *vhlA*. YANG HONG, MARICARMEN GARCÍA, VICTORIA LEITING, DUŠAN BENČINA, LOUISE DUFOUR-ZAVALA, GUILLERMO ZAVALA, AND STANLEY H. KLEVEN 606

Chicken Primary Enterocytes: Inhibition of *Eimeria tenella* Replication After Activation with Crude Interferon-γ Supernatants. I. H. DIMIER-POISSON, D. T. BOUT, AND P. QUÉRÉ 617

Isolation and Prevalence of *Campylobacter* in the Reproductive Tracts and Semen of Commercial Turkeys. K. COLE, A. M. DONOGHUE, P. J. BLORE, AND D. J. DONOGHUE 625

Research Notes—

Control of Coccidiosis in Turkeys with Diclazuril and Monensin: Effects upon Performance and Development of Immunity to *Eimeria* Species. H. D. CHAPMAN, P. L. MATSLER, AND M. E. CHAPMAN 631

Identification of a Novel Nephropathogenic Infectious Bronchitis Virus in Israel. R. MEIR, E. ROSENBLUT, S. PERL, N. KASS, G. AYALI, E. HEMSANI, AND S. PERK 635

Safety of *Mycoplasma gallisepticum* Vaccine Strain 6/85 After Backpassage in Turkeys. M. M. Zaki, N. Ferguson, V. Leiting, and S. H. Kleven 642

Inability of Cecal Microflora to Promote Reversion of Viable Nonculturable *Campylobacter jejuni*. Richard L. Ziprin and Roger B. Harvey 647

Phylogenetic Analysis of the Sigma 2 Protein Gene of Turkey Reoviruses. Holly S. Sellers, Erich G. Linnemann, Lorena Pereira, and Darrell R. Kapczynski 651

Comparative Efficacy of Enrofloxacin, Oxytetracycline, and Sulfadimethoxine for the Control of Morbidity and Mortality Caused by *Escherichia coli* in Broiler Chickens. John R. Glisson, Charles L. Hofacre, and Greg F. Mathis 658

Immunization of Chickens with VP2 Protein of Infectious Bursal Disease Virus Expressed in *Arabidopsis thaliana*. H. Wu, Narendra K. Singh, Robert D. Locy, K. Scissum-Gunn, and Joseph J. Giambrone 663

Survival of Exotic Newcastle Disease Virus in Commercial Poultry Environment Following Removal of Infected Chickens. Hailu Kinde, William Utterback, Ken Takeshita, and Michael McFarland 669

Case Reports—

High Mortality in Egg Layers as a Result of Necrotic Enteritis. A. S. Dhillon, Parimal Roy, Lloyd Lauerman, Dennis Schaberg, Sylvia Weber, Daina Bandli, and Fonda Wier 675

Venereal Colibacillosis (Acute Vaginitis) in Turkey Breeder Hens. Peter Gazdzinski and John Barnes 681

Colobomas of the Iris in a Flock of Rosecomb Bantam Chickens. Carol J. Cardona and Katherine Plumer 686

The Highly Pathogenic Avian Influenza A (H7N7) Virus Epidemic in the Netherlands in 2003—Lessons Learned from the First Five Outbreaks. A. R. W. Elbers, T. H. F. Fabri, T. S. de Vries, J. J. de Wit, A. Pijpers, and G. Koch 691

Hexamita meleagridis (*Spironucleus meleagridis*) Infection in Chukar Partridges Associated with High Mortality and Intracellular Trophozoites. G. L. Cooper, B. R. Charlton, A. A. Bickford, and R. Nordhausen 706

Histomoniasis in the Bursa of Fabricius of Chickens. Portia L. Cortes, R. P. Chin, Mark C. Bland, Rocio Crespo, and H. L. Shivaprasad 711

Bacteriologic Findings in Ostrich (*Struthio camelus*) Eggs from Farms with Reproductive Failures. C. S. Cabassi, S. Taddei, G. Predari, G. Galvani, F. Ghidini, E. Schiano, and S. Cavirani 716

Guidelines for Authors 723